

REMARKS

Claims 22 and 137-142 are allowed. Claims 30-49 are cancelled since they are directed toward a non-elected invention. Claims 20, 50, 55, 60, 71, 87, and 116 are amended. No new subject matter is added. It is believed that the amendments and remarks that follow place the application in condition for allowance.

Claim Rejections – 35 USC § 102

Claims 55-57, 59, 62-64 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,014,113 to Casto (“Casto”). The applicants disagree.

Amended claim 55 recites, *inter alia*, that each of the plurality of electrode pads is coupled to a corresponding lead with a bonding wire. This feature is fully supported by the original application at, e.g., FIG. 9. This feature also appeared in claim 60, which is amended for consistency with claim 55.

It was alleged that the recited leads are shown by Casto element 28 (FIG. 1). Contrary to claim 55, the alleged leads 28 are not coupled to a corresponding electrode pad by a bonding wire. The only element of Casto that fulfills that requirement is lead 20 (see FIG. 1 and column 3, lines 35-39, where it is taught that a lead 20 consists of a proximal end 22 near the IC chip 12, distal ends 24 away from the chip 12, and a lead body 26 generally between the proximal ends 22 and the distal ends 24). The alleged lead 28 is actually a second frame layer 28 that is bonded to the first frame layer 18 (column 3, lines 40-42). This forms a **multiple-layer** lead frame (See, e.g., title of Casto invention – “Multiple Layer Lead Frame” and column 3, line 40; emphasis added).

Claim 55 also recites that the die pad comprises a chip attaching part and a peripheral part that both have a first thickness, that the leads comprise inner leads that are encapsulated by the package body, and that the inner leads have a constant second thickness greater than the first thickness.

Contrary to claim 55, Casto FIG. 1 illustrates that the lead 20 does not have a second thickness that is greater than the first thickness of the die pad 40.

Because Casto’s second frame layer 28 is encapsulated by the encapsulant, it may also be considered part of the recited “inner leads.” However, contrary to claim 55, Casto’s lead 20 and second frame layer 28 together do not have a **constant** second thickness that is greater than the first thickness (FIG. 1; emphasis added). Casto clearly teaches that the second frame layer 28 is absent from the proximal end 22 of the lead 20 (column 3, lines 44-45).

Consequently, Casto fails to anticipate claim 55 because it does not show the recited feature of inner leads having a constant second thickness that is greater than the first thickness. MPEP 2131.

Claim Rejections – 35 USC § 103

Claims 20, 21, 23, 24, 28, 58, 71, 73-80, 86-96, 100, 102-110, 114, 116, 133-134, 136 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Application Publication JP-2000-124396 to Nokita (“Nokita”) in view of Casto. The applicants disagree.

Amended claim 20 recites that the peripheral part protrudes only in a direction toward the second semiconductor chip. This feature is fully supported by the original application at, e.g., FIG. 10.

Neither Nokita nor Casto teach the recited feature of a peripheral part that protrudes only in a direction toward the second semiconductor chip. Consequently, the Nokita/Casto combination fails to establish *prima facie* obviousness for claim 20 because it does not teach or suggest all the features of the claim. MPEP 2143.03.

Furthermore, the above feature of claim 20 is substantially similar to the allowable subject matter which has been identified in claims 22, 137, and 142. For the above reason, claim 20 is believed to be allowable over the prior art of record.

Claims 21, 23, 24, and 28 depend from claim 20. Consequently, these claims are also nonobvious with respect to the Nokita/Casto combination because they depend from a nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

With regard to claims 58 and 113, they depend from independent claim 55. The Nokita/Casto combination does not teach all the features recited in claim 55, consequently the Nokita/Casto combination does not establish *prima facie* obviousness for claims 58 or 113. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

With regard to claim 71, it is amended to recite that the peripheral part protrudes away from the die pad chip attaching part only in a direction away from the semiconductor chip. This feature is fully supported by the original application at, e.g., FIGs. 8 and 10. Furthermore, this feature is substantially similar to the allowable subject matter which has been identified in claims 22, 137, and 142. For the above reason, claim 71 is believed to be allowable over the prior art of record.

Claims 73-80, 86, and 134 depend from claim 71. Consequently, these claims are believed to be allowable over the prior art of record because they depend from a nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Amended claim 87 recites that the peripheral part protrudes only toward the first semiconductor chip. This feature is fully supported by the original application at, e.g., FIG. 10. Additionally, neither Nokita nor Casto teach the recited feature of a peripheral part that protrudes only toward the first semiconductor chip. Consequently, the Nokita/Casto combination fails to establish *prima facie* obviousness for claim 87 because it does not teach or suggest all the features of the claim. MPEP 2143.03. Furthermore, the above feature of claim 87 substantially similar to the allowable subject matter which has been identified in claims 22, 137, and 142. For the above reason, claim 87 is believed to be allowable over the prior art of record.

Claims 88-96, 100, 102-110, and 114 depend from independent claim 87. Therefore, these claims are also nonobvious with respect to the Nokita/Casto combination because they depend from a nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Amended claim 116 recites, *inter alia*, a first semiconductor chip mounted to a *lower* side of the chip attaching part and a second semiconductor chip mounted to an *upper* side of the chip attaching part, said first and second semiconductor chips having a plurality of electrode pads, the peripheral part *perpendicular to the chip attaching part, the peripheral part having a lower surface that is parallel to but not coplanar with the lower side and an upper surface that is coplanar with the upper side* (emphasis added).

The features of claim 116 that are emphasized above are fully supported by the application as originally filed at, e.g., FIG. 10. Neither Nokita nor Casto teach that the peripheral part is perpendicular to the chip attaching part and has a lower surface that is parallel to but not coplanar with the lower side of the chip attaching part and an upper surface that is coplanar with the upper side of the chip attaching part. Consequently, the Nokita/Casto combination fails to establish *prima facie* obviousness for claim 116 because it does not teach or suggest all the features of the claim. MPEP 2143.03.

Furthermore, although worded in a different manner, the above features of claim 116 are similar to the allowable subject matter which has been identified for claims 22, 137, and 142. For this reason, claim 116 is believed to be allowable over the prior art of record.

Claim 136 depends from independent claim 116. Therefore, claim 136 is also nonobvious with respect to the Nokita/Casto combination because it depends from a

nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claim 135 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nokita in view of Casto and further in view of U.S. Patent No. 5,818,105 to Kouda (“Kouda”). The applicants disagree.

Claim 135 depends from independent claim 116. As explained above, claim 116 is nonobvious with respect to the Nokita/Casto combination. Kouda is not alleged to teach the features that Nokita/Casto fails to teach, nor does Kouda teach those features.

Therefore, claim 135 is also nonobvious with respect to the Nokita/Casto/Kouda combination because it depends from a nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 25-27, 29, 82-84, 97-99, 111-113 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Casto and further in view of U.S. Patent Application Publication 2002/0113305 to Huang (“Huang”). The applicants disagree.

Claims 25-27 and 29 depend from independent claim 20. As was explained above, claim 20 is nonobvious with respect to the Nokita/Casto combination. Huang is not alleged to teach the features that Nokita/Casto fails to teach, nor does Huang teach those features.

Therefore, claims 25-27 and 29 are also nonobvious with respect to the Casto/Huang combination because they depend from a nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 82-84 depend from independent claim 71. As was explained above, claim 71 is nonobvious with respect to the Nokita/Casto combination. Huang is not alleged to teach the features that Nokita/Casto fails to teach, nor does Huang teach those features.

Therefore, claims 82-84 are also nonobvious with respect to the Casto/Huang combination because they depend from a nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 97-99 and 111-113 depend from independent claim 87. As was explained above, claim 87 is nonobvious with respect to the Nokita/Casto combination. Huang is not alleged to teach the features that Nokita/Casto fails to teach, nor does Huang teach those features.

Therefore, claims 97-99 and 111-113 are also nonobvious with respect to the Casto/Huang combination because they depend from a nonobvious independent claim. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 60 and 70 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Casto. The applicants disagree.

Claims 60 and 70 depend from independent claim 55. As was explained above, claim 55 is not anticipated by Casto because Casto fails to show the feature of inner leads having a constant second thickness that is greater than the first thickness. Consequently, Casto also fails to establish a *prima facie* case of obviousness with respect to claim 55 because it does not teach or suggest all the features recited in the claim. MPEP 2143.

Therefore, Casto also fails to establish *prima facie* obviousness for claims 60 and 70 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claim 65 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of Nokita. The applicants disagree.

Claim 65 depends from independent claim 55.

As was explained above, claim 55 is not anticipated by Casto because Casto fails to show the recited feature of inner leads having a constant thickness that is greater than the thickness of the chip attaching part and the peripheral part. Nokita shows inner leads 2 having a constant thickness, but contrary to claim 55 that thickness is not greater than the thickness of the alleged peripheral part. Consequently, the Casto/Nokita combination fails to establish *prima facie* obviousness with respect to claim 55 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03.

Therefore, the Casto/Nokita combination also fails to establish *prima facie* obviousness for claim 65 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 66-68, 133 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of Huang. The applicants disagree.

Claims 66-68 and 133 depend from independent claim 55.

As was explained above, claim 55 is not anticipated by Casto because Casto fails to show the recited feature of inner leads having a constant thickness that is greater than the

thickness of the chip attaching part and the peripheral part. Huang also fails to disclose the above feature of claim 55. Consequently, the Casto/Huang combination fails to establish *prima facie* obviousness with respect to claim 55 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03.

Therefore, the Casto/Huang combination also fails to establish *prima facie* obviousness for claims 66-68 and 133 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 69, 85, 101, and 115 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of Kozono. The applicants disagree.

Claim 69 depends from independent claim 55.

As was explained above, claim 55 is not anticipated by Casto because Casto fails to show the recited feature of inner leads having a constant thickness that is greater than the thickness of the chip attaching part and the peripheral part. Kozono also fails to disclose the above feature of claim 55. Consequently, the Casto/Kozono combination fails to establish *prima facie* obviousness with respect to claim 55 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03.

Therefore, the Casto/Kozono combination also fails to establish *prima facie* obviousness for claim 69 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claim 85 depends from independent claim 71. For the reasons explained above, claim 71 is believed to contain subject matter that is allowable over the prior art of record. Therefore, the Casto/Kozono combination fails to establish *prima facie* obviousness for claim 85 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 101 and 115 depend from independent claim 87. For the reasons explained above, claim 87 is believed to contain subject matter that is allowable over the prior art of record. Therefore, the Casto/Kozono combination fails to establish *prima facie* obviousness for claims 101 and 115 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 50, 51, 120-124, 126, 132 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,855,807 to Yamaji et al. (“Yamaji”) in view of Nokita and further in view of Casto. The applicants disagree.

With regard to claim 50, it is amended to recite that the peripheral part protrudes away from the die pad chip attaching part only in a direction away from the semiconductor chip. This feature is fully supported by the original application at, e.g., FIGs. 8 and 10. Furthermore, this feature is substantially similar to the allowable subject matter which has been identified in claims 22, 137, and 142. For the above reason, claim 50 is believed to be allowable over the prior art of record.

Claims 51, 120-124, 126, and 132 depend from independent claim 50. For the reasons explained above, claim 50 is believed to contain subject matter that is allowable over the prior art of record. Therefore, the Yamaji/Nokita/Casto combination fails to establish *prima facie* obviousness for claims 51, 120-124, 126, and 132 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 128-130 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaji in view of Nokita, Casto, and further in view of Huang. The applicants disagree.

As explained above, independent claim 50 now contains subject matter that was indicated to be allowable over the prior art of record. Claims 128-130 depend from claim 50. Therefore, the Yumaji/Nokita/Casto/Huang combination fails to establish *prima facie* obviousness for claims 128-130 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claim 131 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaji in view of Nokita, Casto, Huang and further in view of Kozono. The applicants disagree.

As explained above, independent claim 50 now contains subject matter that was indicated to be allowable over the prior art of record. Claim 131 depends from claim 50. Therefore, the Yumaji/Nokita/Casto/Huang/Kozono combination fails to establish *prima facie* obviousness for claim 131 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

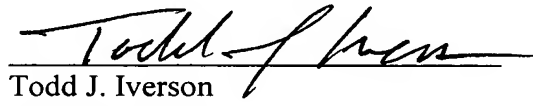
Conclusion

For the foregoing reasons, reconsideration and allowance of claims 20-29, 50-51, 55-71, 73-80, 82-116, 118, 120-126, and 128-142 of the application as amended is requested. Please telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Customer No. 20575

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.



Todd J. Iverson
Reg. No. 53,057

MARGER JOHNSON & McCOLLOM, P.C.
1030 SW Morrison Street
Portland, OR 97205
503-222-3613

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Angie C. Farr